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Donald F. Haas

Date: July 19, 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re application of	)	
	)	
CHARLES L. EDWARDS, KIRK H. RANEY,	)	
and PAUL G. SHPAKOFF	)	
	)	
Serial No. 10/678,889	)	Group Art Unit: 1751
	)	
Filed October 3, 2003	)	Examiner: Necholus Ogden Jr.
	)	
BRANCHED PRIMARY ALCOHOL	)	July 19, 2006
COMPOSITIONS AND DERIVATIVES	)	
<u>THEREOF</u>	)	

ASSISTANT COMMISSIONER FOR PATENTS  
Washington, DC 20231

Sir:

APPEAL BRIEF

Appellants hereby file this Brief on Appeal from the final rejection of claims 57-74 of July 12, 2006. Please charge the fee of \$500 to Shell Oil Company Deposit Account No. 19-1800.

Real Party in Interest

The Real Party in Interest is Shell Oil Company.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 57-74 were added in the second supplemental amendment of October 20, 2005 and all other claims were canceled.

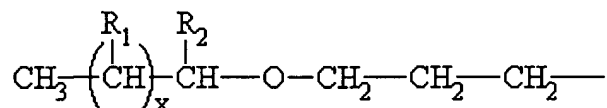
Status of Amendments

No amendments have been filed subsequent to the final rejection.

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### Summary of Claimed Subject Matter

Claims 57-69 relate to an alkyl ether sulfate composition represented by the formula:  
 $\text{XOSO}_3\text{M}$ , wherein M is hydrogen or a cation, and X is represented by the formula



wherein  $\text{R}_1$  represents hydrogen or a hydrocarbyl radical having from 1 to 3 carbon atoms,  $\text{R}_2$  represents a hydrocarbyl radical having from 1 to 7 carbon atoms, x is a number ranging from 0 to 16, wherein the total number of carbon atoms in the alkyl ether sulfate ranges from 9 to 24.

Claims 70-74 relate to a detergent composition comprising the alkyl ether sulfate composition of the previous claims.

### Grounds of Rejection to be Reviewed on Appeal

The sole ground of rejection to be reviewed upon this appeal is whether or not claims 57-74 are obvious under Section 103(a) in view of the cited reference "Physiochemical properties of anionic surfactants with poly(oxyalkylene) group in water," Tsujii et al.

### Argument

The alkyl ether sulfate composition described in the present claims is a branched alkyl ether sulfate composition. This is clear by looking at X in the formula in claim 57. That group is a branched alkyl ether group. The branching is provided by Group  $\text{R}_2$  which is a hydrocarbyl radical extending from the main alkyl ether chain. Furthermore, it can be seen that the propoxy group of the ether linkage ( $-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_2-$ ) is attached to an interior carbon of the alkyl group. The alkyl group chain starts with the  $\text{CH}_2$  group on the left and extends to the last carbon atom in  $\text{R}_2$ .

The reference discloses sodium salts of sulfate esters of alkoxylated C 12-18 fatty alcohols containing 1-8 oxyalkylene groups/mol. These are linear surfactants which have the oxyalkylene groups attached to the end carbon of the alkyl chain, which in this case is a C 4 alkyl group.

Page 31 of the specification describes the enhanced calcium tolerance of the sulfated branched primary alcohol compositions of the present invention as compared to the calcium tolerances of linear alkyl benzene sulfonates, linear alkyl sulfates, and branched alkyl sulfates. In the last paragraph on page 33 of the specification, it states that the sulfates of the branched ether primary alcohols of the present invention exhibit cold water detergency values of at least 22 percent at 50°F (10°C), Krafft temperatures of 10°C or less, and a calcium tolerance of 5000 ppm  $\text{CaCl}_2$  or more. Example A-C on pages 51 and 52 of the specification compare the properties of

sulfated C<sub>12</sub>, C<sub>14</sub>, and C<sub>16</sub> branched primary alcohols which were prepared in a manner similar to Example 6 which describes the production of the alkyl ether composition shown at page 42, line 4. The comparative materials were a sulfate of the linear NEODOL® 23 alcohol and a C<sub>12</sub> linear alkyl sulfate.

The hardness tolerance of the linear alkyl sulfate was 140 ppm and the hardness tolerance of the NEODOL® 23 alcohol sulfate was 18 ppm. In contrast, the hardness tolerances of the three alkyl ether sulfates of the present invention were greater than 120,000 ppm, 30,200, ppm and 1800 ppm. The Applicants assert that this clearly shows the unexpected dramatic superiority of the alkyl ether sulfate composition of the present claims over linear sulfated alkoxyated surfactants which are closely analogous to the one described in the reference. The Applicants assert that these linear compositions are closely analogous because of their close structural similarity in the sense discussed by the Examiner on page 4 of the office action whereas the branched compositions of the present invention are not closely analogous to the structure of the reference compositions because of the presence of the branching.

In paragraph 2 of the final rejection, the Examiner responds to the argument that the prior art compound is a linear compound and the claimed compounds are branched compounds by stating that

"The Examiner contends that linear or branched chain compounds are similar and obvious to the skilled artisan, in the absence of unexpected results. The Applicant argues that the showing in Example 6 exhibits the superiority of the claimed branched alkyl ether sulfate having a higher hardness tolerance than the commercial Neodol 23 alkyl ether sulfate. The Examiner contends that the showing is not commensurate in scope to the claimed invention, because the Applicant has not compared the closest structure of the prior art against the claimed compound of the invention."

The Applicant asserts that the Examiner's rejection of the comparative data presented in the application is unreasonable. Two comparative materials were provided as discussed above. One was a sulfate of a linear C<sub>12-13</sub> alcohol and the other was a C<sub>12</sub> linear alkyl sulfate. The reference describes sodium salts of sulfate esters of alkoxyated C<sub>12-13</sub> fatty acid alcohols. Both of the comparative materials fall within the scope of this description. The branched materials of the present invention shown in the examples were C<sub>12</sub>, C<sub>14</sub>, and C<sub>16</sub> branched primary alcohol sulfates. The Applicants assert that the comparative data provided in the application proves the

superiority of the branched materials over the linear materials and also is a reasonable comparison based on the teachings of the reference.

The Applicant requests that this appeal be upheld and that the Examiner's rejection be overturned.

Respectfully submitted,

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By 

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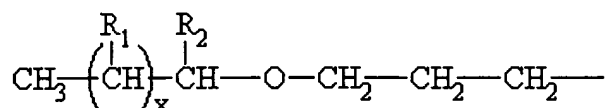
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## CLAIMS APPENDIX

Claims 1-56 (Canceled).

57. An alkyl ether sulfate composition comprising an alkyl ether sulfate represented by the formula:

$\text{XOSO}_3\text{M}$ , wherein M is hydrogen or a cation, and X is represented by the formula



wherein  $\text{R}_1$  represents hydrogen or a hydrocarbyl radical having from 1 to 3 carbon atoms,  $\text{R}_2$  represents a hydrocarbyl radical having from 1 to 7 carbon atoms, x is a number ranging from 0 to 16, wherein the total number of carbon atoms in the alkyl ether sulfate ranges from 9 to 24.

58. The alkyl ether sulfate composition of claim 57 wherein M is hydrogen.

59. The alkyl ether sulfate composition of claim 57 wherein M is a cation effective to provide a water soluble alkyl ether sulfate composition.

60. The alkyl ether sulfate composition of claim 59 wherein M is selected from the group consisting of ammonium, alkanolammonium, monovalent metal cations, and polyvalent metal cations.

61. The alkyl ether sulfate composition of claim 57 wherein  $\text{R}_2$  is a hydrocarbyl radical having 1 carbon atom.

62. The alkyl ether sulfate composition of claim 61 wherein  $\text{R}_1$  is hydrogen.

63. The alkyl ether sulfate composition of claim 57 wherein x is a number ranging from 3 to 13.

64. The alkyl ether sulfate composition of claim 58 wherein  $\text{R}_2$  is a hydrocarbyl radical having 1 carbon atom.

65. The alkyl ether sulfate composition of claim 64 wherein  $R_1$  is hydrogen.
66. The alkyl ether sulfate composition of claim 58 wherein  $x$  is a number ranging from 3 to 13.
67. The alkyl ether sulfate composition of claim 59 wherein  $R_2$  is a hydrocarbyl radical having 1 carbon atom.
68. The alkyl ether sulfate composition of claim 67 wherein  $R_1$  is hydrogen.
69. The alkyl ether sulfate composition of claim 59 wherein  $x$  is a number ranging from 3 to 13.
70. A detergent composition comprising the alkyl ether sulfate composition of claim 57.
71. A detergent composition comprising the alkyl ether sulfate composition of claim 58.
72. A detergent composition comprising the alkyl ether sulfate composition of claim 59.
73. A detergent composition comprising the alkyl ether sulfate composition of claim 61.
74. A detergent composition comprising the alkyl ether sulfate composition of claim 63.

## EVIDENCE APPENDIX

No additional evidence is submitted with this Appeal Brief.

## RELATED PROCEEDINGS APPENDIX

There are no related proceedings.